Release notes for ENDF/B Development n-042_Mo_096 evaluation

April 26, 2017

- `checkr` Warnings:

   1. A previous error halted parsing of the current section
      MAT=4237, MF= 1, MT=451 (1): Parsing stopped

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 1, MT=451
          SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      337 TO      411
      ```
   2. Generic warning message
      MAT=4237, MF= 3, MT=107 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 3, MT=107
      WARNING(S)    IN MAT=4237, MF= 3, MT=203
      ```
   3. Generic warning message
      MAT=4237, MF= 3, MT=203 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 3, MT=203
      WARNING(S)    IN MAT=4237, MF= 3, MT=204
      ```
   4. Generic warning message
      MAT=4237, MF= 3, MT=204 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 3, MT=204
      WARNING(S)    IN MAT=4237, MF= 3, MT=205
      ```
   5. Generic warning message
      MAT=4237, MF= 3, MT=205 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 3, MT=205
      WARNING(S)    IN MAT=4237, MF= 3, MT=207
      ```
   6. Generic warning message
      MAT=4237, MF= 6, MT= 91 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 91
      WARNING(S)    IN MAT=4237, MF= 6, MT=203
      ```
   7. Generic warning message
      MAT=4237, MF= 6, MT=203 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 6, MT=203
      WARNING(S)    IN MAT=4237, MF= 6, MT=204
      ```
   8. Generic warning message
      MAT=4237, MF= 6, MT=204 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 6, MT=204
      WARNING(S)    IN MAT=4237, MF= 6, MT=205
      ```
   9. Generic warning message
      MAT=4237, MF= 6, MT=205 (1): Warning

      ```
      ERROR(S) FOUND IN MAT=4237, MF= 6, MT=205
      WARNING(S)    IN MAT=4237, MF= 6, MT=207
      ```

- `checkr` Errors:

    1. A variable is outside the allowed ENDF range
       MAT=4237, MF= 1, MT=451 (0): Variable range

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 1, MT=451
           MOD =    1 OUT OF RANGE    0 -    0          RECORD NUMBER    337
       ```

    2. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 2, MT=151 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 2, MT=151
           SECTION  2/151 NOT IN DIRECTORY             RECORD NUMBER    413
       ```

    3. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 1 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT=  1
           SECTION  3/  1 NOT IN DIRECTORY             RECORD NUMBER    556
       ```

    4. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 2 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT=  2
           SECTION  3/  2 NOT IN DIRECTORY             RECORD NUMBER    720
       ```

    5. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 4 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT=  4
           SECTION  3/  4 NOT IN DIRECTORY             RECORD NUMBER    884
       ```

    6. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 16 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 16
           SECTION  3/ 16 NOT IN DIRECTORY             RECORD NUMBER    904
       ```

    7. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 17 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 17
           SECTION  3/ 17 NOT IN DIRECTORY             RECORD NUMBER    912
       ```

    8. Missing a section in directory so your directory is messed up. This error will break everything else
       MAT=4237, MF= 3, MT= 22 (0): Directory (b)

       ```
       ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 22
           SECTION  3/ 22 NOT IN DIRECTORY             RECORD NUMBER    918
       ```

9. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 28 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 28
     SECTION  3/ 28 NOT IN DIRECTORY              RECORD NUMBER    928
```

10. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 51 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 51
     SECTION  3/ 51 NOT IN DIRECTORY              RECORD NUMBER    936
```

11. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 52 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 52
     SECTION  3/ 52 NOT IN DIRECTORY              RECORD NUMBER    955
```

12. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 53 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 53
     SECTION  3/ 53 NOT IN DIRECTORY              RECORD NUMBER    973
```

13. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 54 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 54
     SECTION  3/ 54 NOT IN DIRECTORY              RECORD NUMBER    990
```

14. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 55 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 55
     SECTION  3/ 55 NOT IN DIRECTORY              RECORD NUMBER   1007
```

15. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 56 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 56
     SECTION  3/ 56 NOT IN DIRECTORY              RECORD NUMBER   1023
```

16. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT= 57 (0): Directory (b)$

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 57
     SECTION  3/ 57 NOT IN DIRECTORY              RECORD NUMBER   1039
```

17. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 58 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 58
       SECTION  3/ 58 NOT IN DIRECTORY              RECORD NUMBER    1054
```

18. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 59 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 59
       SECTION  3/ 59 NOT IN DIRECTORY              RECORD NUMBER    1069
```

19. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 60 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 60
       SECTION  3/ 60 NOT IN DIRECTORY              RECORD NUMBER    1083
```

20. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 61 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 61
       SECTION  3/ 61 NOT IN DIRECTORY              RECORD NUMBER    1097
```

21. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 62 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 62
       SECTION  3/ 62 NOT IN DIRECTORY              RECORD NUMBER    1110
```

22. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 63 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 63
       SECTION  3/ 63 NOT IN DIRECTORY              RECORD NUMBER    1123
```

23. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 64 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 64
       SECTION  3/ 64 NOT IN DIRECTORY              RECORD NUMBER    1136
```

24. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 65 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 65
       SECTION  3/ 65 NOT IN DIRECTORY              RECORD NUMBER    1148
```

25. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 66 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 66
       SECTION  3/ 66 NOT IN DIRECTORY                RECORD NUMBER    1160
```

26. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 67 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 67
       SECTION  3/ 67 NOT IN DIRECTORY                RECORD NUMBER    1171
```

27. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT= 91 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT= 91
       SECTION  3/ 91 NOT IN DIRECTORY                RECORD NUMBER    1182
```

28. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT=102 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT=102
       SECTION  3/102 NOT IN DIRECTORY                RECORD NUMBER    1194
```

29. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT=103 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT=103
       SECTION  3/103 NOT IN DIRECTORY                RECORD NUMBER    1217
```

30. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT=104 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT=104
       SECTION  3/104 NOT IN DIRECTORY                RECORD NUMBER    1231
```

31. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT=105 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT=105
       SECTION  3/105 NOT IN DIRECTORY                RECORD NUMBER    1243
```

32. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF= 3, MT=107 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 3, MT=107
       SECTION  3/107 NOT IN DIRECTORY                RECORD NUMBER    1253
```

33. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT=203$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT=203
      SECTION  3/203 NOT IN DIRECTORY                RECORD NUMBER    1269
```

34. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT=204$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT=204
      SECTION  3/204 NOT IN DIRECTORY                RECORD NUMBER    1347
```

35. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT=205$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT=205
      SECTION  3/205 NOT IN DIRECTORY                RECORD NUMBER    1359
```

36. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 3, MT=207$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 3, MT=207
      SECTION  3/207 NOT IN DIRECTORY                RECORD NUMBER    1369
```

37. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 4, MT= 2$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT=  2
      SECTION  4/  2 NOT IN DIRECTORY                RECORD NUMBER    1407
```

38. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 4, MT= 51$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 51
      SECTION  4/ 51 NOT IN DIRECTORY                RECORD NUMBER    1589
```

39. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 4, MT= 52$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 52
      SECTION  4/ 52 NOT IN DIRECTORY                RECORD NUMBER    1686
```

40. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT=4237, MF= 4, MT= 53$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 53
      SECTION  4/ 53 NOT IN DIRECTORY                RECORD NUMBER    1715
```

41. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 54 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 54
      SECTION  4/ 54 NOT IN DIRECTORY              RECORD NUMBER    1744
```

42. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 55 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 55
      SECTION  4/ 55 NOT IN DIRECTORY              RECORD NUMBER    1773
```

43. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 56 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 56
      SECTION  4/ 56 NOT IN DIRECTORY              RECORD NUMBER    1802
```

44. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 57 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 57
      SECTION  4/ 57 NOT IN DIRECTORY              RECORD NUMBER    1831
```

45. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 58 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 58
      SECTION  4/ 58 NOT IN DIRECTORY              RECORD NUMBER    1860
```

46. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 59 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 59
      SECTION  4/ 59 NOT IN DIRECTORY              RECORD NUMBER    1889
```

47. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 60 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 60
      SECTION  4/ 60 NOT IN DIRECTORY              RECORD NUMBER    1918
```

48. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 61 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 61
      SECTION  4/ 61 NOT IN DIRECTORY              RECORD NUMBER    1990
```

49. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 62 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 62
       SECTION  4/ 62 NOT IN DIRECTORY              RECORD NUMBER    2019
```

50. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 63 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 63
       SECTION  4/ 63 NOT IN DIRECTORY              RECORD NUMBER    2048
```

51. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 64 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 64
       SECTION  4/ 64 NOT IN DIRECTORY              RECORD NUMBER    2077
```

52. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 65 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 65
       SECTION  4/ 65 NOT IN DIRECTORY              RECORD NUMBER    2106
```

53. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 66 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 66
       SECTION  4/ 66 NOT IN DIRECTORY              RECORD NUMBER    2135
```

54. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 4, MT= 67 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 4, MT= 67
       SECTION  4/ 67 NOT IN DIRECTORY              RECORD NUMBER    2164
```

55. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 6, MT= 16 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 16
       SECTION  6/ 16 NOT IN DIRECTORY              RECORD NUMBER    2194
```

56. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF= 6, MT= 17 (0): Directory (b)

```
    ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 17
       SECTION  6/ 17 NOT IN DIRECTORY              RECORD NUMBER    2718
```

57. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}22$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 22
      SECTION  6/ 22 NOT IN DIRECTORY              RECORD NUMBER     2842
```

58. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}28$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 28
      SECTION  6/ 28 NOT IN DIRECTORY              RECORD NUMBER     3633
```

59. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}91$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT= 91
      SECTION  6/ 91 NOT IN DIRECTORY              RECORD NUMBER     4103
```

60. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}203$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT=203
      SECTION  6/203 NOT IN DIRECTORY              RECORD NUMBER     5148
```

61. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}204$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT=204
      SECTION  6/204 NOT IN DIRECTORY              RECORD NUMBER     5496
```

62. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}205$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT=205
      SECTION  6/205 NOT IN DIRECTORY              RECORD NUMBER     5691
```

63. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}6$, $MT{=}207$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF= 6, MT=207
      SECTION  6/207 NOT IN DIRECTORY              RECORD NUMBER     5820
```

64. Missing a section in directory so your directory is messed up. This error will break everything else
$MAT{=}4237$, $MF{=}12$, $MT{=}102$ (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=12, MT=102
      SECTION 12/102 NOT IN DIRECTORY              RECORD NUMBER     6391
```

65. Missing a gamma spectrum for continuum of gammas
MAT=4237, MF=12, MT=102 (1): No gamma spectrum

```
   ERROR(S) FOUND IN MAT=4237, MF=12, MT=102
       CONTINUUM PHOTONS REQUIRE A SECTION IN MF=15
```

66. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=13, MT= 3 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=13, MT=  3
       SECTION 13/  3 NOT IN DIRECTORY                RECORD NUMBER    6400
```

67. Missing a gamma spectrum for continuum of gammas
MAT=4237, MF=13, MT= 3 (1): No gamma spectrum

```
   ERROR(S) FOUND IN MAT=4237, MF=13, MT=  3
       CONTINUUM PHOTONS REQUIRE A SECTION IN MF=15
```

68. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=14, MT= 3 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=14, MT=  3
       SECTION 14/  3 NOT IN DIRECTORY                RECORD NUMBER    6412
```

69. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=14, MT=102 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=14, MT=102
       SECTION 14/102 NOT IN DIRECTORY                RECORD NUMBER    6414
```

70. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=15, MT= 3 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=15, MT=  3
       SECTION 15/  3 NOT IN DIRECTORY                RECORD NUMBER    6417
```

71. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=15, MT=102 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=15, MT=102
       SECTION 15/102 NOT IN DIRECTORY                RECORD NUMBER    6865
```

72. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=33, MT= 1 (0): Directory (b)

```
   ERROR(S) FOUND IN MAT=4237, MF=33, MT=  1
       SECTION 33/  1 NOT IN DIRECTORY                RECORD NUMBER    7005
```

73. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=4237, MF=33, MT= 2 (0): Directory (b)

```
      ERROR(S) FOUND IN MAT=4237, MF=33, MT=  2
         SECTION 33/  2 NOT IN DIRECTORY                RECORD NUMBER    7242
```

74. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF=33, MT= 4 (0): Directory (b)

```
      ERROR(S) FOUND IN MAT=4237, MF=33, MT=  4
         SECTION 33/  4 NOT IN DIRECTORY                RECORD NUMBER    7479
```

75. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF=33, MT= 16 (0): Directory (b)

```
      ERROR(S) FOUND IN MAT=4237, MF=33, MT= 16
         SECTION 33/ 16 NOT IN DIRECTORY                RECORD NUMBER    7583
```

76. Missing a section in directory so your directory is messed up. This error will break everything else
    MAT=4237, MF=33, MT=102 (0): Directory (b)

```
      ERROR(S) FOUND IN MAT=4237, MF=33, MT=102
         SECTION 33/102 NOT IN DIRECTORY                RECORD NUMBER    7603
```

- `groupie` Errors:

  1. Very small elastic cross section found
     0: Small elastic

     ```
     Multi-Group and Multi-Band Parameters from ENDF/B Data (GROUPIE 2015-2)
     ----------------------------------------------------------------------
     ENDF/B Input and Output Data Filenames
     ENDFB.IN
     ENDFB.OUT
     ... [97 more lines]
     ```

- `fudge-4.0` Warnings:

  1. Missing a channel with a particular angular momenta combination
     resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

     ```
     WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"
     WARNING: Missing a channel with angular momenta combination L = 1, J = 0.5 and S = 1.5 for "capture"
     WARNING: Missing a channel with angular momenta combination L = 1, J = 1.5 and S = 1.5 for "capture"
     WARNING: Missing a channel with angular momenta combination L = 1, J = 2.5 and S = 1.5 for "capture"
     ```

  2. Unnormalized outgoing probability distribution
     reaction label 18: n + Mo96_c / Product: n / Distribution: / energyAngular - XYs3d: (Error # 0): Bad norm

     ```
     WARNING: Unnormalized distribution! At energy_in = 2621280. eV (index 0), integral = 0.5
     WARNING: Unnormalized distribution! At energy_in = 2921280. eV (index 1), integral = 0.664468189543
     WARNING: Unnormalized distribution! At energy_in = 3.e6 eV (index 2), integral = 0.664468407352
     WARNING: Unnormalized distribution! At energy_in = 4.e6 eV (index 3), integral = 0.881843689822
             ... plus 16 more instances of this message
     ```

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3. Unnormalized outgoing probability distribution
reaction label 19: n[multiplicity:'2'] + Mo95 / Product: n / Distribution: / energyAngular - XYs3d: (Error # 0): Bad norm

```
WARNING: Unnormalized distribution! At energy_in = 9250570. eV (index 0), integral = 0.5
WARNING: Unnormalized distribution! At energy_in = 9550570. eV (index 1), integral = 0.781487395358
WARNING: Unnormalized distribution! At energy_in = 1.e7 eV (index 2), integral = 0.781488908509
WARNING: Unnormalized distribution! At energy_in = 1.1e7 eV (index 3), integral = 0.884951089039
        ... plus 9 more instances of this message
```

4. Unnormalized outgoing probability distribution
reaction label 20: n[multiplicity:'3'] + Mo94 / Product: n / Distribution: / energyAngular - XYs3d: (Error # 0): Bad norm

```
WARNING: Unnormalized distribution! At energy_in = 1.67032e7 eV (index 0), integral = 0.5
WARNING: Unnormalized distribution! At energy_in = 1.70032e7 eV (index 1), integral = 0.664468189543
WARNING: Unnormalized distribution! At energy_in = 1.8e7 eV (index 2), integral = 0.801561152866
WARNING: Unnormalized distribution! At energy_in = 1.9e7 eV (index 3), integral = 0.858091332914
        ... plus 1 more instances of this message
```

5. Unnormalized outgoing probability distribution
reaction label 21: n + H1 + Nb95 / Product: n / Distribution: / energyAngular - XYs3d: (Error # 0): Bad norm

```
WARNING: Unnormalized distribution! At energy_in = 9.3944e6 eV (index 0), integral = 0.5
WARNING: Unnormalized distribution! At energy_in = 9.6944e6 eV (index 1), integral = 0.742106713961
WARNING: Unnormalized distribution! At energy_in = 1.1e7 eV (index 2), integral = 0.742107220511
WARNING: Unnormalized distribution! At energy_in = 1.2e7 eV (index 3), integral = 0.715266596083
        ... plus 8 more instances of this message
```

6. Unnormalized outgoing probability distribution
reaction label 23: n + He4 + Zr92 / Product: n / Distribution: / energyAngular - XYs3d: (Error # 0): Bad norm

```
WARNING: Unnormalized distribution! At energy_in = 2793010. eV (index 0), integral = 0.5
WARNING: Unnormalized distribution! At energy_in = 3093010. eV (index 1), integral = 0.664468189543
WARNING: Unnormalized distribution! At energy_in = 6.e6 eV (index 2), integral = 0.664468407352
WARNING: Unnormalized distribution! At energy_in = 7.e6 eV (index 3), integral = 0.696199653102
        ... plus 13 more instances of this message
```

7. For distributions, flat interpolation along incident energy is unphysical!
production label 28: /reactionSuite/reactions/production[@label='28'] / Product: gamma / Distribution: / uncorrelated - energy - XYs2d: (Error # 0): flatIncidentEnergyInterpolation

```
WARNING: For distributions, flat interpolation along incident energy is unphysical!
```

8. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.13%
```

9. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 1: nonelastic (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.37%
```

10. Cross section does not match sum of linked reaction cross sections
    crossSectionSum label 2: (z,n) (Error # 0): CS Sum.

    ```
    WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.10%
    ```

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 0 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 0 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 1 (n + Mo96): / Form 'eval': / Component 0 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 1 (n + Mo96): / Form 'eval': / Component 1 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 2 ((z,n)): / Form 'eval': (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 3 (n[multiplicity:'2'] + Mo95): / Form 'eval': (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 4 (Mo97 + gamma): / Form 'eval': / Component 0 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
    Section 4 (Mo97 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.

    ```
    WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
    ```

- `fudge-4.0` Errors:

1. Calculated and tabulated Q values disagree.
   reaction label 19: n[multiplicity:'2'] + Mo95 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -9165830.860015869 eV vs -9154280. eV!
   ```

2. Calculated and tabulated Q values disagree.
   reaction label 21: n + H1 + Nb95 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -9309075.390457153 eV vs -9296610. eV!
   ```

3. Calculated and tabulated Q values disagree.
   reaction label 22: Mo97 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: 6809753.582504272 eV vs 6821090. eV!
   ```

4. Calculated and tabulated Q values disagree.
   reaction label 24: H1 + Nb96_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -2415962.863800049 eV vs -2404430. eV!
   ```

5. Calculated and tabulated Q values disagree.
   reaction label 25: H2 + Nb95_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -7084509.289520264 eV vs -6991910. eV!
   ```

6. Calculated and tabulated Q values disagree.
   reaction label 26: H3 + Nb94_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -9315992.534835815 eV vs -9302260. eV!
   ```

7. Calculated and tabulated Q values disagree.
   reaction label 27: He4 + Zr93_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: 3961435.603347778 eV vs 3.976e6 eV!
   ```

- `njoy2012` Warnings:

  1. Recoil is not given, so one-particle recoil approximation used.
     heatr...prompt kerma (0): HEATR/hinit (4)

     ```
     ---message from hinit---mf6, mt 16 does not give recoil za= 42095
                            one-particle recoil approx. used.
     ```

  2. Recoil is not given, so one-particle recoil approximation used.
     heatr...prompt kerma (1): HEATR/hinit (4)

     ```
     ---message from hinit---mf6, mt 17 does not give recoil za= 42094
                            one-particle recoil approx. used.
     ```

  3. Recoil is not given, so one-particle recoil approximation used.
     heatr...prompt kerma (2): HEATR/hinit (4)

     ```
     ---message from hinit---mf6, mt 22 does not give recoil za= 42096
                            one-particle recoil approx. used.
     ```

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4. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (3): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt 28 does not give recoil za= 42096
                           one-particle recoil approx. used.
   ```

5. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (4): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt 91 does not give recoil za= 42096
                           one-particle recoil approx. used.
   ```

6. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (5): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt203 does not give recoil za= 41096
                           one-particle recoil approx. used.
   ```

7. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (6): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt204 does not give recoil za= 41095
                           one-particle recoil approx. used.
   ```

8. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (7): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt205 does not give recoil za= 41094
                           one-particle recoil approx. used.
   ```

9. Recoil is not given, so one-particle recoil approximation used.
   heatr...prompt kerma (8): HEATR/hinit (4)

   ```
   ---message from hinit---mf6, mt207 does not give recoil za= 40093
                           one-particle recoil approx. used.
   ```

- `njoy2012` Errors:

  1. Main energy grid is not monotonic
     check...ace consistency check (0): Monotonic

     ```
     check that main energy grid is monotonic
       consis: energy  4.20000100E-01 less than  4.20000100E-01 (see point no.  12964)
     ```

- `acelst` Warnings:

  1. generic warning message
     0: Warning

     ```
     ACELST WARNING - x.s. E-grid non-monot. 4.200001000E+05 4.200001000E+05
      Formatting of MF6 not coded for MT          16  Law          61
     ```